

# 5 Conservation Element







Photo Credit: Flickr: Marc Smith



*Belmont's open spaces are part of the larger regional network of open space on the San Francisco Peninsula. Open space in Belmont is protected for the preservation of natural resources and for public health and safety, among other purposes.*

## 5.1 INTRODUCTION

The Conservation Element establishes goals, policies, and actions for the conservation of natural resources in Belmont. This element addresses open space resources, including hillsides; biological resources; hydrology, water quality, and water supply and demand; wastewater, solid waste, and stormwater management; air quality and climate change; and cultural and archaeological resources.

### RELATIONSHIP TO STATE LAW

A Conservation Element for the conservation, development, and utilization of natural resources including water, forests, soils, rivers, wildlife, minerals, and other natural resources is required to be included in a General Plan by State law (California Government Code section 65302(d)). The Conservation Element must consider the effect of development within the jurisdiction, as described in the Land Use Element, on natural resources located on public lands.

### RELATIONSHIP TO OTHER GENERAL PLAN ELEMENTS

The Conservation Element includes open space for preservation of natural resources and open space for public health and safety, and it bears a strong relationship to the Parks, Recreation, and Open Space Element, which addresses open space for outdoor recreation. The Conservation Element also

relates to the Safety Element, as many of the open spaces for public health and ecological benefits incorporate areas of increased risk from geological, seismic, and hydrological hazards. Additionally, the discussion of water, wastewater, and solid waste facilities is closely related to the buildout projected through the General Plan planning horizon in the Land Use Element.

### RELATIONSHIP TO COMMUNITY VISION

This Element provides goals and policies that support the “natural beauty” values in the Belmont Community Vision:

#### Natural Beauty

- We choose to make our home among these beautiful hills, trees, parks, views, and open spaces.
- Our natural surroundings inspire us to play, create, and contemplate.
- Our actions today preserve and enhance Belmont's beauty to make it even lovelier for future generations.
- Our wooded residential areas are diverse, peaceful and well maintained.

## 5.2 OPEN SPACE RESOURCES

### NATURAL RESOURCES OPEN SPACE

Belmont's extensive open spaces are part of the regional open space network on the San Francisco Peninsula. Notable landmarks in the city include San Juan Hills, Western Hills, Water Dog Lake, and Belmont Creek. The watershed for the San Francisco Public Utility District is located to the west of Belmont, and Sugarloaf Mountain is located to the north. These connected open spaces are valuable because they provide travel corridors for wildlife and increase wildlife population diversity. They also play important roles in stormwater management, ecological functions, and other environmental conservation efforts.

While the extensive natural open space system provides numerous benefits for the Belmont community, it also brings challenges. Human safety and recreation opportunities must be balanced with maintaining the proper functioning of natural systems. For instance, the City has to manage invasive species, reduce fire hazards, and maintain trails as part of the effort to preserve and maintain the open spaces. The habitats of the natural resources open spaces found in Belmont are briefly described below and discussed in more detail in the General Plan EIR.

### Natural Open Space Habitats in Belmont

Shown in Figure 5-1, the natural open space habitats in Belmont vary widely, from tree- and shrub-dominated habitats in the western hills to herbaceous-dominated habitats and aquatic habitats in eastern Belmont. The tree-dominated habitats include Valley Oak Woodland, Valley Foothill Riparian, Coastal Oak Woodland, Montaine Hardwood, and Blue Oak Woodland. Shrub-dominated habitats are found mostly in the southwestern area of Belmont and include Chamise-Redshank Chaparral and Coastal Scrub. Herbaceous-dominated habitats include Saline Emergent Wetland near the O'Neill Slough and Annual Grass in the far western hills. The vegetation classifications for these areas are shown on Figure 5-2.

Wetland habitats are found in a few areas in eastern Belmont, as shown in Figure 5-3. The O'Neill Slough is an estuarine and marine wetland, and there are also estuarine and marine deepwater wetlands in various places in eastern Belmont, including near the US 101 ramps. Hillside drainages also create seasonal creeks. Wetlands are considered sensitive natural communities by several resource agencies and are given special consideration.



*The Conservation Element prioritizes preservation of natural beauty and wildlife habitats.*

FIGURE 5-1: HABITAT TYPES

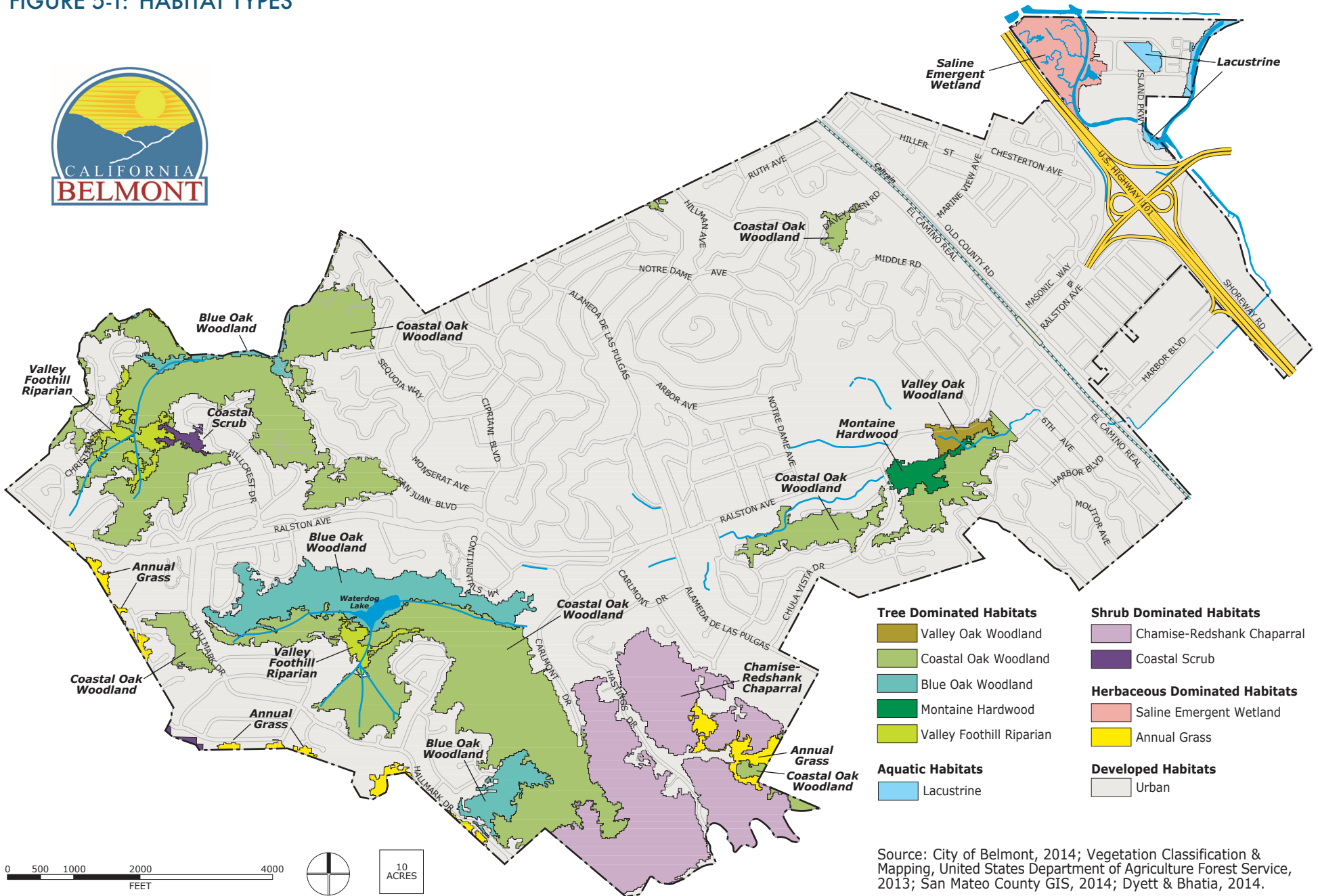




FIGURE 5-2: VEGETATION

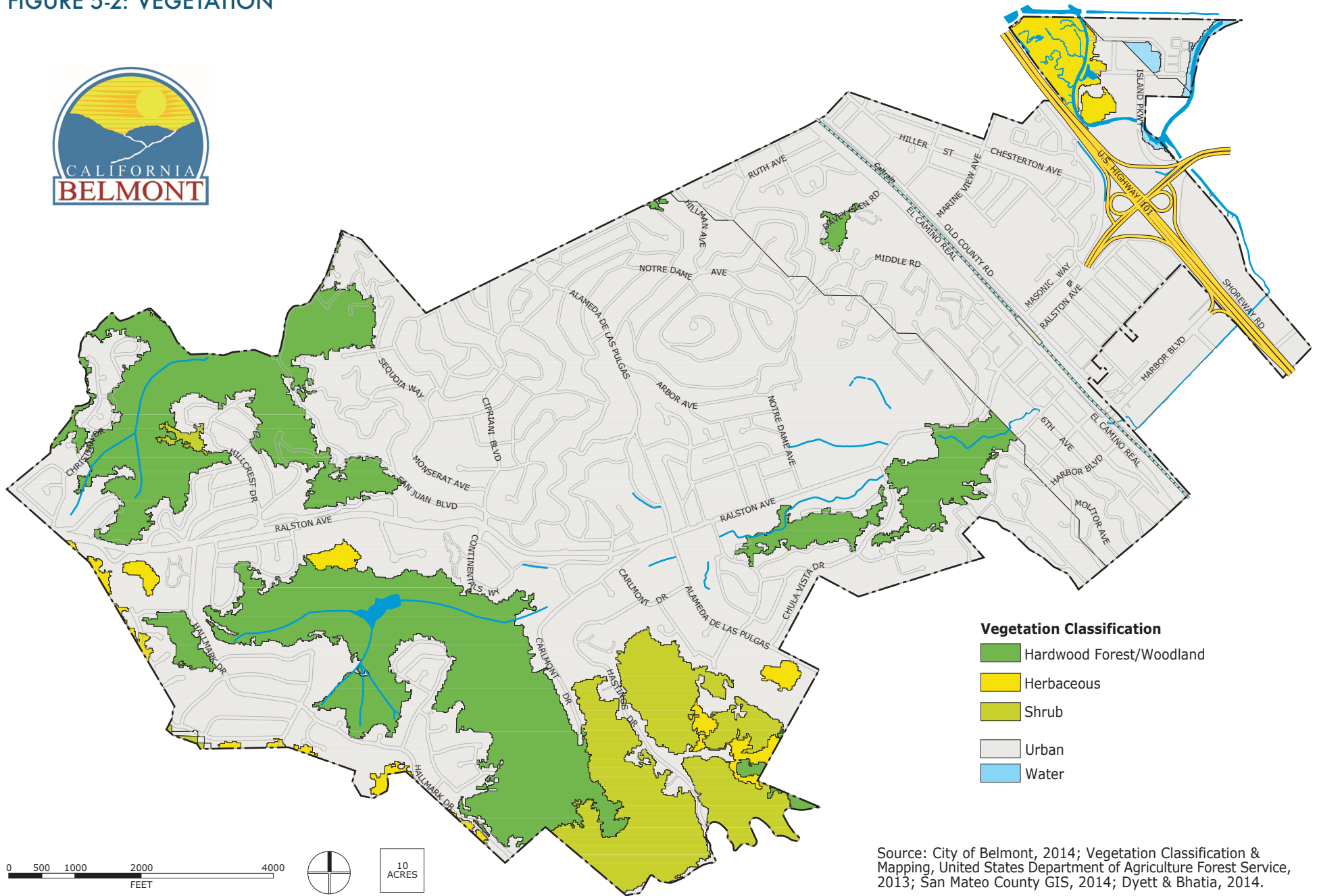




FIGURE 5-3: WATERWAYS AND WETLANDS

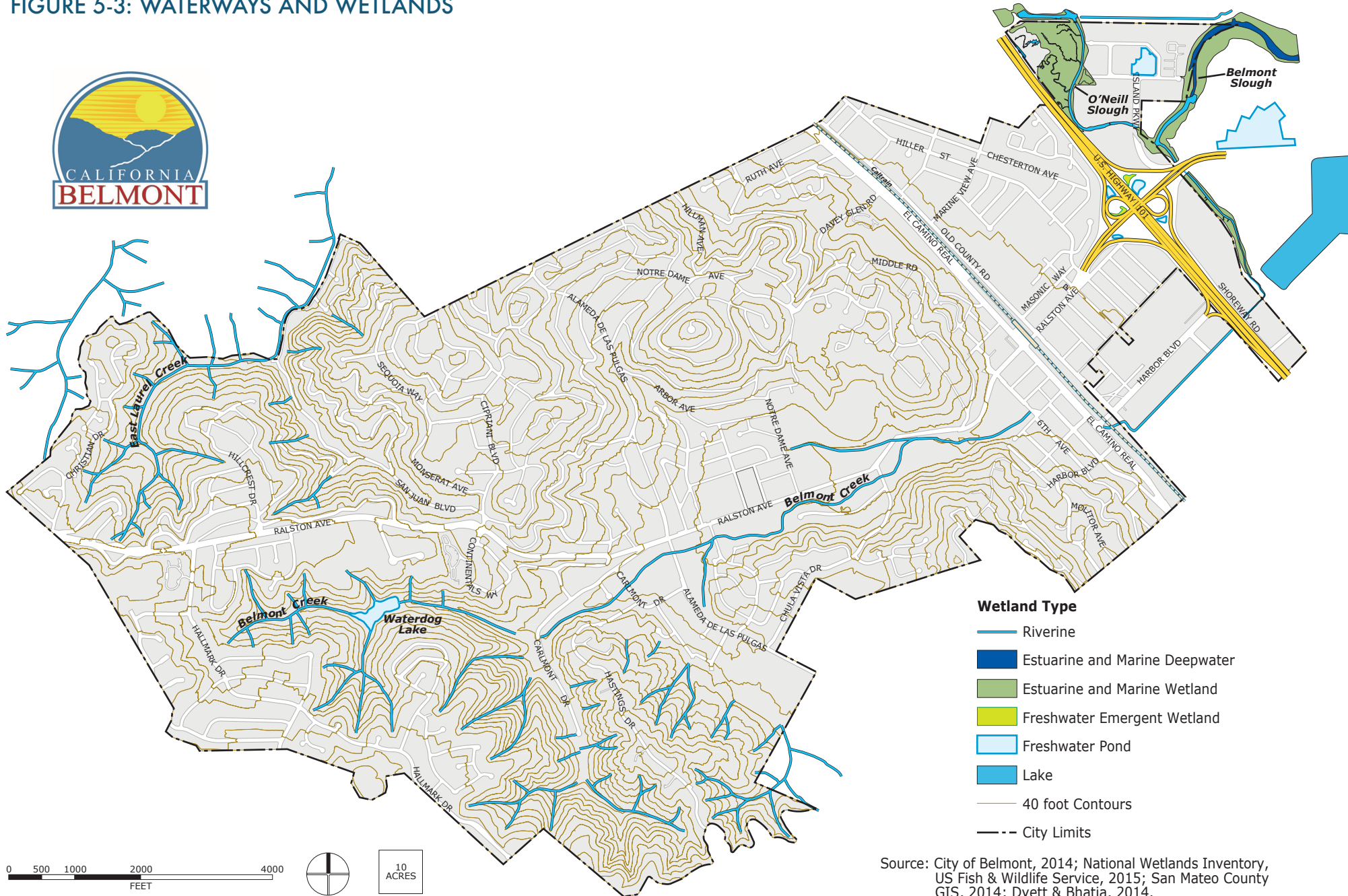
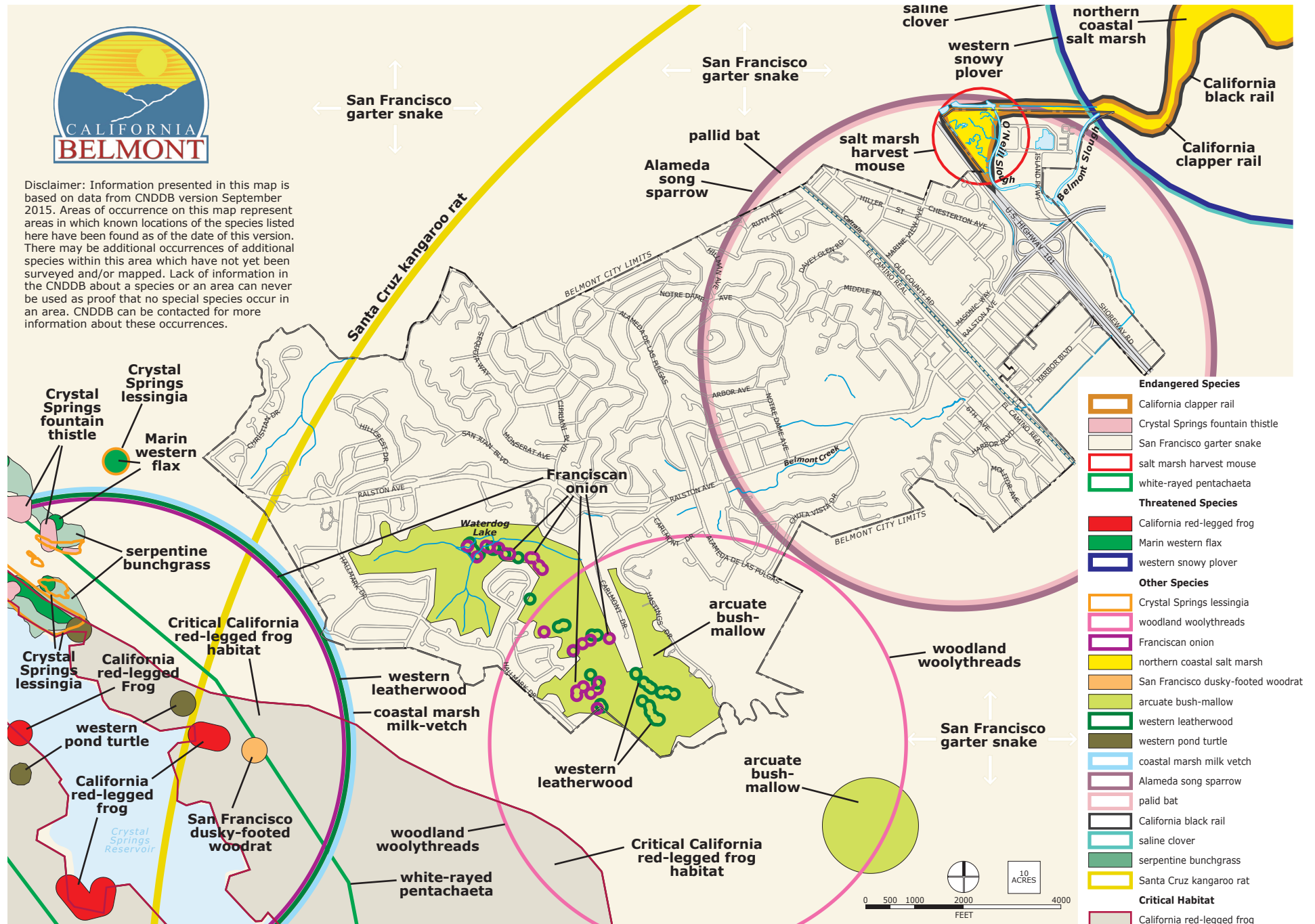




FIGURE 5-4: BIOLOGICAL RESOURCES–SPECIAL STATUS SPECIES



Source: City of Belmont, 2014; California Natural Diversity Database (CNDDDB) 2015; San Mateo County GIS, 2014, Dyett& Bhatia, 2015.





*Some of Belmont's steepest hillsides are preserved as open space.*

### **Critical Habitat Area Near Belmont**

Critical habitat areas are for species listed under the Federal Endangered Species Act. These areas contain features that are essential for the conservation of the species and may require special management and protection. While Belmont does not have any critical habitat areas identified at this time, critical habitat for the California red-legged frog has been designated to the west of the Planning Area and is noted here for its proximity to Belmont's western border, as shown on Figure 5-4.

### **PUBLIC HEALTH AND SAFETY OPEN SPACE**

The natural open spaces in Belmont experience a number of geological, seismic, and hydrological impacts, which contribute to their designation as open spaces rather than areas for development. Due to the numerous environmental constraints, most of the natural open spaces are either entirely undeveloped/unimproved (even as parkland) or protected with minimal necessary maintenance.

Two Area Plans – the San Juan Hills Area Plan (1988) and the Western Hills Area Plan (1990) - were developed to address the unique problems and protect the assets of the individual hillside areas. Both the San Juan Hills and the Western Hills are beset by a combination of significant geologic hazards, hydrological concerns, steep slopes,

and potential wildland fire hazards, which are discussed in more detail in the Safety Element. The San Juan Hills Area Plan objectives include proposed improvements to the wastewater system, drainage system, and restriction on roadway expansions. The Western Hills Area Plan reduces development potential in the area, increases the provision of open space, addresses the provision and financing of infrastructure, mitigates geologic and hydrologic issues, limits density and intensity of development, and provides community design standards.

Some of the natural open spaces that are located within the San Juan Hills and Western Hills Area Plans have designated “paper” streets and lots that have not been developed. Theoretically, these streets and lots could be developed, consistent with the Area Plans, with residential or other limited uses; however, the constraints associated with such development—not least of which is the difficulty of extending infrastructure, even if environmental constraints could be overcome—have left these areas undeveloped but with an uncertain future. Updating the Area Plans to maintain consistency with this General Plan is an important implementation priority.

### **Hillside Conservation Zoning**

The City addresses hillside conservation through its Zoning Ordinance. As shown on Figure 5-5, the Hillside Residential and Open



Space (HRO) zoning districts are located in both the northwest and southwest portions of Belmont and are subject to environmental constraints such as geologic hazards, soil hazards, and inadequate roadways. The HRO zone regulations restrict residential developments by FAR, height limitation, and density reduction on steep slopes. The Transfer of Development Rights program applies to subdivided parcels, and incentives to cluster homes apply to unsubdivided parcels; these serve to limit development on problematic sites and minimize new roadway expansion.

Approved by Belmont voters in 2005, Measure F requires that changes to the existing Hillside Residential and Open Space Zoning Districts (HRO-1, HRO-2, and HRO-3) that would increase the maximum allowed density must be approved by Belmont voters. Measure F also requires Belmont voters to approve rezoning land from a HRO District to another district that allows increased development density. This is discussed in more detail in the Land Use Element.

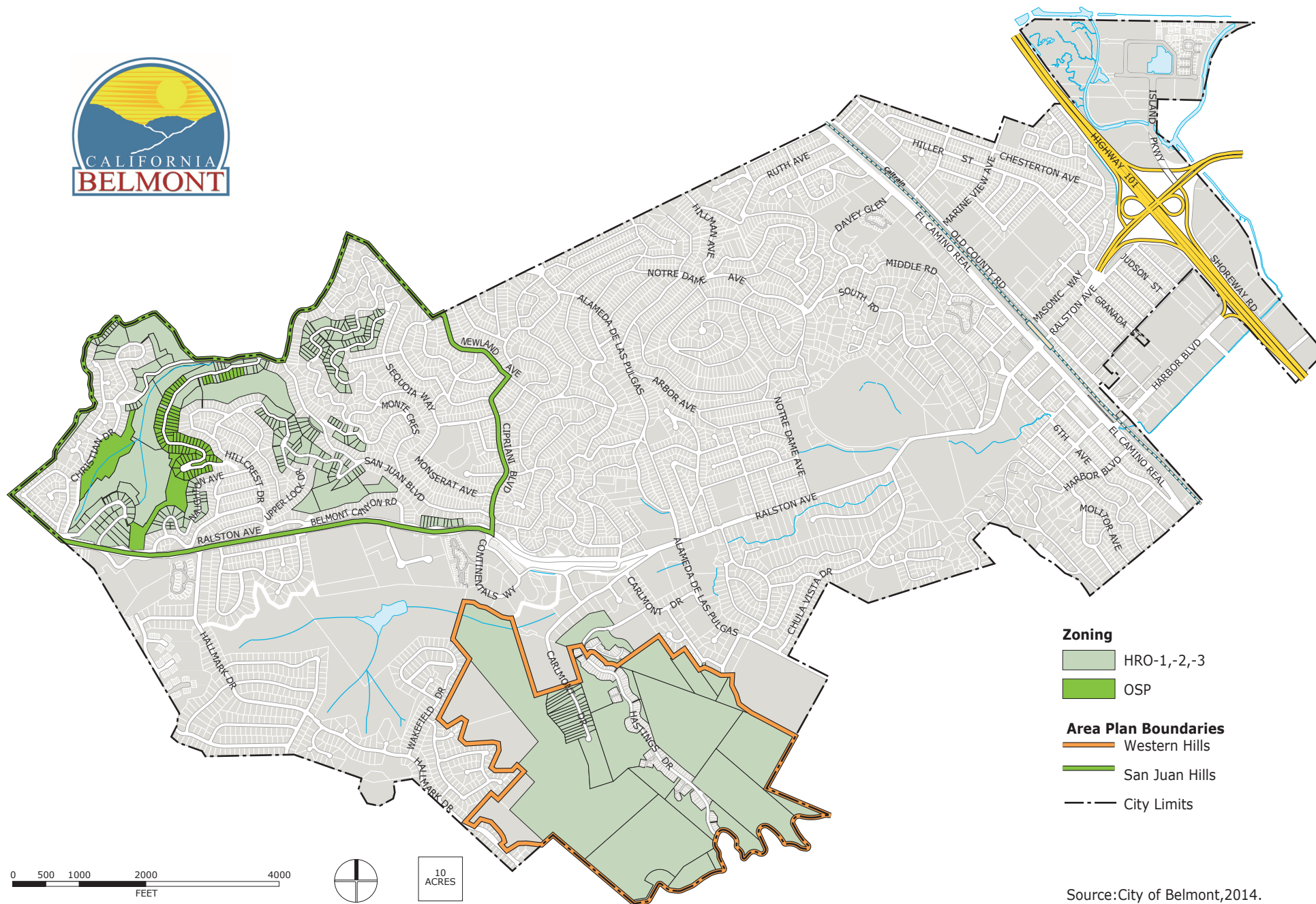
In 2013, a new zoning district “Open Space-Public (OS-P)” was approved by the Belmont City Council to preserve significant open space portion of San Juan Hills, which was previously zoned under the HRO district. Also shown on Figure 5-5, the OS-P district currently contains 87 former HRO parcels, including 84 subdivided parcels along Bartlett



*The HRO zoning districts restrict residential development on steep slopes.*



FIGURE 5-5: HRO AND OS-P ZONING



Way and three unsubdivided parcels. Under the OS-P zone regulation, only limited public facilities are permitted. Expansion of the OS-P to cover additional areas that are currently zoned HRO, Agricultural, and other designations as appropriate should be considered during implementation of the General Plan. This action would allow consistent zoning and subsequent management of the public open space in Belmont.

### 5.3 BIOLOGICAL RESOURCES

Belmont is generally a developed area with some large areas of natural open space, and it is neighbored by other cities to the north, south, and east, and the Crystal Springs watershed lands for the San Francisco Public Utilities District to the west. Certain special-status species have been known to occur in the Planning Area. Special-status species are those plants and animals that, because of their acknowledged rarity or vulnerability to various causes of habitat loss or population decline, are recognized in some fashion by federal, State, or other agencies as deserving special consideration. The California Natural Diversity Database (CNDDB) lists a number of such species that have been known to occur within and around the Planning Area, and areas where known occurrences of these species have been found are shown in Figure 5-4. The General Plan EIR includes

a more detailed description of each of these communities and habitats.

#### FLORA

The white-rayed pentachaeta (*Pentachaeta bellidiflora*) and Crystal Springs Fountain Thistle (*Cirsium fontinale*) are listed by the State of California and by the federal government as Endangered Species and have been recorded to the west of the Planning Area. The Marin western flax (*Hesperolinon congestum*) is a Threatened Species that has been located west of Belmont.

Recorded in the western hills of Belmont, the Franciscan onion (*Allium peninsulare* var. *franciscanum*), arcuate bush-mallow (*Malacothamnus arcuatus*), western leatherwood (*Dirca occidentalis*), and woodland woollythreads (*Monolopia gracilens*) are all species that are not federally- or State-listed, but have a California Native Plant Society (CNPS) ranking of 1B.2, meaning that they are rare, threatened, or endangered in California and elsewhere. The coastal marsh milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*) and saline clover (*Trifolium hydrophilum*) are also ranked 1B.2 by CNPS and have been recorded near eastern Belmont.

#### FAUNA

The California clapper rail (*Rallus longirostris obsoletus*) and salt-marsh harvest mouse (*Reithrodontomys raviventris*) are two federally-listed Endangered Species that have been



Listed by the California Native Plant Society as rare, threatened, or endangered, the Western Leatherwood is found in the western hills of Belmont.





Photo Credit: Flickr, Jerry Kinkaid

Other special status species in Belmont include the Western Pond Turtle.



Photo Credit: Flickr, California Department of Fish and Wildlife Service

The Pallid Bat is a special status species that has been recorded in Belmont.



Photo Credit: Flickr, Bjorn Erickson/US Fish and Wildlife Service

The Salt Marsh Harvest Mouse is an Endangered Species that has been found in the eastern area of Belmont.

recorded in the eastern area of Belmont, near the O'Neill Slough and beyond. The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) is another federally-listed Endangered Species that may exist in the Planning Area and in surrounding communities. Listed as a Threatened Species by the US Fish and Wildlife Service, the western snowy plover (*Charadrius nivosus nivosus*) has been recorded in the very eastern portion of the Planning Area and beyond. The California red-legged frog (*Rana draytonii*) is another Threatened Species with a critical habitat area located to the west of the Planning Area, as discussed above in Section 5.1.

Other special status species in or near the Planning Area include the San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*), western pond turtle (*actinemys marmorata*), Santa Cruz kangaroo rat

(*Dipodomys venustus venustus*), Alameda song sparrow (*Melospiza melodia pusillula*), pallid bat (*Antrozous pallidus*), and California black rail (*Laterallus jamaicensis coturniculus*).

## 5.4 HYDROLOGY, WATER QUALITY, AND WATER SUPPLY AND DEMAND

Water resources are important not only for residents and businesses but also for sustainability of the natural environment. Belmont's natural waterways also contribute to the character of the community. Careful stewardship is critical to conserve and protect water resources, ensure water quality, manage stormwater, and create a more livable city. Water quality standards are established and enforced by the State and the San Francisco Bay Regional Water Quality Control Board (RWQCB). The RWQCB also issues general



Photo Credit: Flickr, US Fish and Wildlife Service, Pacific Southwest Region

Recorded in the very eastern portion of Belmont, the Western Snowy Plover is a Threatened Species.

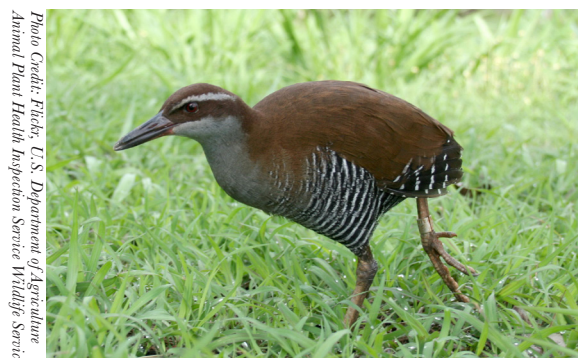


Photo Credit: Flickr, U.S. Department of Agriculture, Animal Plant Health Inspection Service, Wildlife Services

California Clapper Rail is an Endangered Species that has been recorded in the eastern area of Belmont near the O'Neill Slough and beyond.

and individual National Pollutant Discharge Elimination System permits for certain activities, per the federal Water Pollution Control Act.

This section discusses water resources and policies that seek to ensure that future development does not negatively impact water quality. Water supply, use, and conservation measures are also addressed. Flooding and drainage is discussed in the Safety Element.

## SURFACE WATER

### Surface Water Resources

Shown in Figure 5-3, there are a number of surface water resources in the city. North of Ralston Avenue, the eastern branch of Laurel Creek flows through the San Juan Hills area down into the City of San Mateo. There are a number of smaller tributaries in Belmont's northwest neighborhoods that contribute to the creek.

South of Ralston Avenue, Belmont Creek originates in the hills above Hallmark Drive and flows from the western hills towards the San Francisco Bay. It flows through Water Dog Lake, a man-made reservoir located in the Western Hills, in the upper portion of the Belmont Creek drainage area. Below Water Dog Lake, Belmont Creek runs from west to east, roughly parallel to Ralston Avenue. The creek exits the City of Belmont upstream of Old County Road at Harbor Boulevard, and then forms the boundary between the

Harbor Industrial Area and the City of San Carlos. It reenters the City of Belmont east of US 101, and then flows through O'Neill and Belmont sloughs before discharging to San Francisco Bay. Additionally, there are several tributaries to Belmont Creek along Carlmont Drive, Alameda de las Pulgas, and Notre Dame de Namur University.

East of US 101, O'Neill Slough is connected to the San Francisco Bay via Belmont Slough to the east. O'Neill Slough is a brackish mix of freshwater from the creeks and salt water from the Bay.

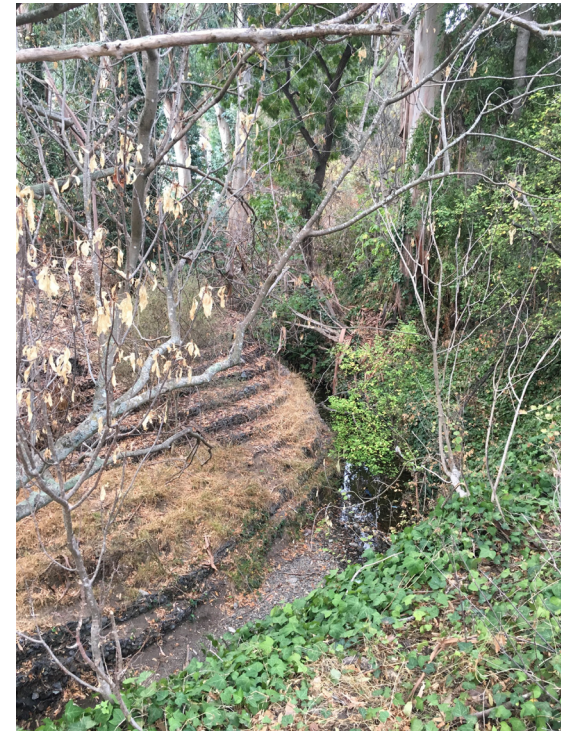
### Surface Water Quality

Impacts to water quality result from runoff during dry and wet weather events, direct discharge associated with industrial/commercial activities, automobiles, and herbicides. Pollutant sources may be generated from past waste disposal practices and chemicals and fertilizers applied to landscaping. Contaminants may include sediment, PCBs/mercury, hydrocarbons and metals, pesticides, nutrients, bacteria, and trash.

Treated sewage generated in the Planning Area is eventually discharged to the San Francisco Bay via the Silicon Valley Clean Water wastewater treatment facility, which is located in Redwood Shores. A small amount of wastewater from Belmont flows to the San Mateo Wastewater Treatment Plant.



*A valued resource by the Belmont community, Water Dog Lake is a man-made reservoir in the Western Hills area.*



*Belmont Creek runs from west to east through much of the city, roughly parallel to Ralston Avenue, and serves as a wildlife corridor.*

Photo Credits: Flickr, Christopher Confi



## GROUNDWATER

The Planning Area's water is supplied by the Mid-Peninsula Water District, as discussed below, which does not draw on groundwater from wells to service the population. However, some private residences in Belmont may have private wells, which are addressed in Section 26 of the Belmont Municipal Code.

## WATER SUPPLY AND DEMAND

State law requires that the Conservation Element of General Plans be developed in coordination with water, flood management, water conservation, and groundwater agencies (Section 65302.2) and include a discussion and evaluation of water supply and demand (Section 65352.5). The Mid-Peninsula Water District (MPWD) provides water for the City of Belmont, and it prepared an Urban Water Management Plan (UWMP) in 2015, which is the source for the information presented in this section. MPWD is a member of the Bay Area Water Supply and Conservation Agency (BAWSCA), which represents cities, water districts, and a water company across San Mateo, Santa Clara, and Alameda counties that purchase water from the San Francisco Public Utilities Commission (SFPUC). MPWD participates in a number of the regional water conservation initiatives coordinated by BAWSCA. In addition, MPWD also coordinates with the City of Belmont, City of San Carlos, San Mateo County, Silicon Valley Clean Water, and Belmont-San Carlos

Fire Department in the preparation of the Urban Water Management Plan.

### *Potable Water Supply and Demand*

MPWD provides potable water to the Planning Area, and potable water facilities are shown on Figure 5-6. The District's service area covers the City of Belmont, small portions of the City of San Carlos, Redwood City, and parts of unincorporated San Mateo County. Currently, the District purchases all of its water from the SFPUC. Most of the water supply is drawn from the Sierra Nevada Mountains through the Hetch Hetchy Regional System, and the rest is produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo counties. None of the alternative water sources within Belmont, including surface water, groundwater, and recycled water, are currently viable or financially feasible to be developed.

Water demand fluctuates in relation to the local development. Due to trends in development and the changing economy, demand from commercial and industrial sectors is expected to rise over the planning horizon of the General Plan, as discussed in the Land Use Element. In addition, proposed new housing and employment growth indicate more water use in the future. However, water use is gradually expected to trend downward because of conservation efforts, as shown in multi-family residential water demand, which

FIGURE 5-6: POTABLE WATER FACILITIES



Source: City of Belmont, 2014.





*Belmont's natural waterways and creeks contribute to the character of the community while performing ecological functions.*

is anticipated to decline from 2020 to 2035. Table 5-1 shows the projected water demand in the MPWD service area, as presented in the 2015 Urban Water Management Plan, between 2015 and 2035. Water supplies for 2015-2035 are provided in Table 5-2.

According to the 2015 UWMP, MPWD's maximum guaranteed supply, known as its maximum wholesale allocation, is 1,420 million gallons (MG) per year, or 3.891 million gallons per day (mgd), in accordance with its contract with SFPUC. An Interim Supply Allocation was imposed by the SFPUC that reduces the supply to 3.71 mgd (1,354 MG per year) through 2018. A comparison of water supply and demand is provided in Table

5-3. According to the 2015 UWMP, MPWD's water supply is sufficient to meet current and projected demands.

### **Baseline Water Conservation**

In 2009, the California Water Code incorporated the Water Conservation Act (SBx7-7), which proposed a 20 percent reduction in statewide urban water use by 2020. Table 5-4 shows a summary of water use targets and current use, as presented in the 2015 Urban Water Management Plan. MPWD will have to reduce 5 percent of its total water use from the applicable baseline to meet the water reduction goal by 2020. MPWD, as a member of the California Urban Water Conservation Council (CUWCC),

**TABLE 5-1: Potable and Raw Water Demand 2015-2035 (in MG<sup>1</sup>)**

<b>Sector</b>	<b>2015<sup>2</sup></b>	<b>2020<sup>3</sup></b>	<b>2025<sup>3</sup></b>	<b>2030<sup>3</sup></b>	<b>2035<sup>3</sup></b>
Single Family Residential	429	612	613	610	613
Multi-Family Residential	140	187	186	183	183
Commercial	146	210	223	237	248
Industrial	21	54	50	47	43
Public Authority	49	63	64	66	67
<b>Demand</b>	<b>785</b>	<b>1,126</b>	<b>1,136</b>	<b>1,143</b>	<b>1,154</b>
Losses	55	70	73	75	77
<b>Production Requirement</b>	<b>840</b>	<b>1,196</b>	<b>1,209</b>	<b>1,218</b>	<b>1,231</b>

Notes:

1. MG=Million Gallons

2. MPWD actual 2015 metered data. MPWD consumption data from MPWD's Continental Utility Solutions, Inc., (CUSI) billing system.

3. Future projections source: BAWSCA Regional Water Demand and Conservation Projections Report (MWM, September 2014). Projected water use includes plumbing code savings.

Source: MPWD Urban Water Management Plan 2015.

may also choose another water reduction target – an 18 percent reduction in potable water demand from an applicable baseline by 2018, to demonstrate compliance with the programmatic Best Management Practices (BMPs). In 2015, the District’s consumption was 85 gallons per capita daily (GPCD), indicating that the applicable BMP goal for 2018 of 106.3 GPCD is within reach if it continues to implement the BMPs.

### Existing Conservation Programs

In compliance with the California Water Code, MPWD prepares an Urban Water Management Plan (UWMP) that includes the Water Conservation Programs. The UWMP is updated every five years and includes implementation goals for a number of programs, which encompass system maintenance, public outreach, and water conservation for all sectors. The UWMP also includes an analysis of short and long-term water shortage contingencies in MPWD.

**TABLE 5-2: Water Supply 2015-2035 (in MG<sup>1</sup>)**

Sector	2015 <sup>2</sup>	2020 <sup>3</sup>	2025 <sup>3</sup>	2030 <sup>3</sup>	2035 <sup>3</sup>
Supply	1,354	1,420	1,420	1,420	1,420

**Notes:**

1. MG=Million Gallons
2. An Interim Supply Allocation was imposed by the SFPUC that reduces the supply to 3.71 mgd (1,354 MG per year) through 2018.
3. MPWD’s supply assurance from SFPUC is 3.891 mgd (1,420 MG per year) under the terms of the Water Supply Contract with the SFPUC. The MPWD’s supply assurance continues indefinitely.

**TABLE 5-3: Water Supply vs Demand 2015-2035 (in MG<sup>1</sup>)**

Sector	2015	2020	2025	2030	2035
Supply <sup>2</sup>	1,354	1,420	1,420	1,420	1,420
Demand <sup>3</sup>	840	1,196	1,209	1,218	1,231
<b>Difference</b>	<b>514</b>	<b>224</b>	<b>211</b>	<b>202</b>	<b>189</b>

**Notes:**

1. MG=Million Gallons
2. MPWD actual 2015 metered data. MPWD consumption data from MPWD’s Continental Utility Solutions, Inc., (CUSI) billing system.
3. MPWD’s supply assurance from SFPUC is 3.891 mgd (1,420 MG per year) under the terms of the Water Supply Contract with the SFPUC. The MPWD’s supply assurance continues indefinitely.

Source: MPWD Urban Water Management Plan 2015.

**TABLE 5-4: Summary of Water Use Targets and Current Use**

**SBx7-7 Targets**

2015 SBx7-7 Interim Target	126 GPCD <sup>1</sup>
2020 SBx7-7 Target	121 GPCD

**California Urban Water Conservation Council Targets**

2018 BMP Compliance Target	106.3 GPCD
----------------------------	------------

**Current Water Use**

a) 5 Year Baseline GPCD	127 GPCD
b) 2015 actual (1 year)	85 GPCD

**Notes:**

1. Gallons per Capita Daily

Source: Mid-Peninsula Water District Urban Water Management Plan 2010, 2011, 2015.



**TABLE 5-5: Wastewater Flows in the City of Belmont**

Time	Average Dry Weather Flow	Peak Dry Weather Flow	Peak Wet Weather Flow
Existing	1.8 MGD <sup>1</sup>	2.26 MGD	11.8 MGD
Future (2030)	1.8 MGD	3.6 MGD	16.3 MGD <sup>2</sup>

Notes:

1. Millions of Gallons per Day.

2. Will be revised in the near future and is projected to be significantly reduced based on the City's capital improvement and I/I reduction initiatives.

Source: City of Belmont, 2014; SVCW Conveyance System Master Plan, 2011.

## 5.5 WASTEWATER, SOLID WASTE, & STORMWATER FACILITIES

### WASTEWATER

#### Infrastructure

The existing wastewater system in the City of Belmont consists of approximately 85 miles of gravity sewer pipelines ranging in size from six to 27 inches in diameter, and five miles of force mains. Over 80 percent of the City's wastewater system is composed of 6-inch diameter vitrified clay pipe. In addition, the sewer collection system consists of 11 wastewater pump stations. Figure 5-7 shows the City's existing wastewater system. New development in Belmont must be connected to the City's wastewater system per State law.

Most of the wastewater generated in the City is conveyed to the Silicon Valley Clean Water (SVCW) treatment plant, which discharges the effluent to the San Francisco Bay. The SVCW treatment plant is located at Redwood Shores, and serves all its member agencies, including the West Bay Sanitary District (WBSD), City of Redwood City, City of San Carlos, and City of Belmont.

#### System Capacity

According to the City's 2010 Sanitary Sewer System Capacity Analysis, the wastewater system has constraints in meeting wet

water hydraulic capacity design criteria for both existing and future flow conditions in certain pipeline segments. Though they are constrained in meeting current design standards, these segments can still convey wastewater without causing a sewage spill. The Analysis concluded that, considering all ongoing and planned improvements, the existing wastewater system is adequate in accommodating the anticipated flow in average and peak dry weather flow conditions by 2030, which are detailed in Table 5-5. However, the anticipated wet weather inflow and infiltration during wet weather events is expected to exceed the existing system capacity by 2030. In 2014, the City Council approved a 15-year capital improvement plan to address the City's deferred sewer capital needs. As the City undertakes these improvements among other initiatives, the City's system will improve its capacity constraints and aging infrastructure.

### SOLID WASTE

The City of Belmont is a member of the South Bay Waste Management Authority (SBWMA), also known as Rethink Waste. In 2010, the City signed a franchise agreement with Recology of San Mateo County (Recology), which provides exclusive waste collection, waste reduction, recycling, and composting services. Residential and commercial solid waste collected by Recology, including recyclable and organic materials,

FIGURE 5-7: EXISTING WASTEWATER SYSTEM







*Recology of San Mateo County provides waste collection, waste reduction, recycling, and composting services in Belmont.*

is sent to Shoreway Environmental Center for processing and shipment. Shoreway Environmental Center is a regional recycling and transfer station owned by Rethink Waste and accepts waste from its member agencies. Table 5-6 shows a breakdown of the amount and type of solid waste by land use in the City of Belmont.

RethinkWaste provides door-to-door household hazardous waste pickup service for the Belmont residents. San Mateo County also provides a Very Small Quantity Generator Program (VSQG) to dispose of a small amount of hazardous waste from businesses (maximum 100 kilograms per month). The City currently does not set specific goals for hazardous waste reduction or diversion. Hazardous materials and waste are also discussed in the Safety Element.

## STORMWATER MANAGEMENT

### Stormwater Infrastructure

The City's storm drainage infrastructure consists of 28 miles of storm drainpipes and two storm pump stations. Four main drainage

areas – Belmont Creek, Laurel Creek, O'Neill Slough and Island Park Belmont Creek – together collect about 80 percent of the storm runoff in the city, while the rest flows to the City of San Mateo and the City of San Carlos. Belmont Creek is the primary storm drainage conveyance of the city, conveying approximately 60 percent of the city's storm runoff. In addition, Belmont's significant amount of open space, particularly near Water Dog Lake, assists in absorption of rainwater that would otherwise drain through Belmont Creek. Figure 5-8 shows the existing storm drain system in the city.

### Stormwater Management

The City complies with the Municipal Regional Stormwater Permit (MRP), issued by the San Francisco Regional Water Quality Control Board in 2009 and reissued with revisions in November 2015, for its storm water pollution control measures. The MRP requires local agencies in San Mateo County to incorporate reduction in surface water drainage pollution runoff and establish control measures in development projects,

**TABLE 5-6: Solid Waste by Land Use in 2014**

Land Use	Solid Waste (tons per year)	Recycling (tons per year)	Compost (tons per year)
Residential	3,253	2,836	3,878
Commercial	5,036	1,264	672
<b>Total</b>	<b>8,288</b>	<b>4,100</b>	<b>4,550</b>

*Source: City of Belmont, 2014; SVCW Conveyance System Master Plan, 2011.*

which provide specific guidelines on design measures for runoff of pollutants of concern, source controls, stormwater treatment measures, hydromodification management, and construction site controls. To address water quality and flow-related impacts of stormwater runoff, the City also enforces NPDES permits that are issued to entities in Belmont that have stormwater discharges, such as industrial activities and construction activities.

### Proposed Improvements

The 2009 Storm Drain Master Plan identified a number of needed improvements within the City's storm drain system, including undersized and failing drainage lines, absence of drainage systems in certain areas, and flood control measures for higher rain intensity design standards. Implementation of these improvements will better serve the City's drainage system in reducing possible flooding, roadway deterioration, and infiltration to the wastewater system. The Master Plan prioritizes deficient drainage replacement and system improvement of frequently flooded areas. Rehabilitation and improvement projects, based on the Master Plan priorities, are gradually being implemented as funding is identified to provide sufficient storm drain facilities and provide streetscape improvements for flood protection and water pollution prevention to improve water quality.

### Funding for Stormwater Infrastructure

Historically, the City has not had a dedicated funding source for its drainage Capital Improvement Projects. Past and ongoing projects have been funded by the NPDES storm drainage fees and sewer fees. A stormwater fee or other source of revenue may be needed over the planning horizon of the General Plan to ensure sufficient funding for system improvements.

## 5.6 AIR QUALITY & GREENHOUSE GASES

### LOCAL AIR QUALITY

Protecting and improving air quality is important to Belmont and communities across California, as certain kinds of air pollutants are directly harmful to human health and the health of the natural environment, including water quality and plant and animal life.

### Climatic Conditions

Climate and local meteorology, especially wind speed and direction and temperature, along with topography, can affect air quality by limiting or facilitating the dispersal of air pollutants. In summer, the northwest winds over the Pacific are drawn into the interior of the Bay Area through the Golden Gate and over the lower portions of the San Francisco Peninsula. In winter, the Bay Area experiences periods of storminess and moderate-to-strong winds and periods of stagnation with very



*Belmont's extensive open spaces and wooded hills assist in the absorption of rainwater.*



*Rainwater drains to Water Dog Lake in the Western Hills.*

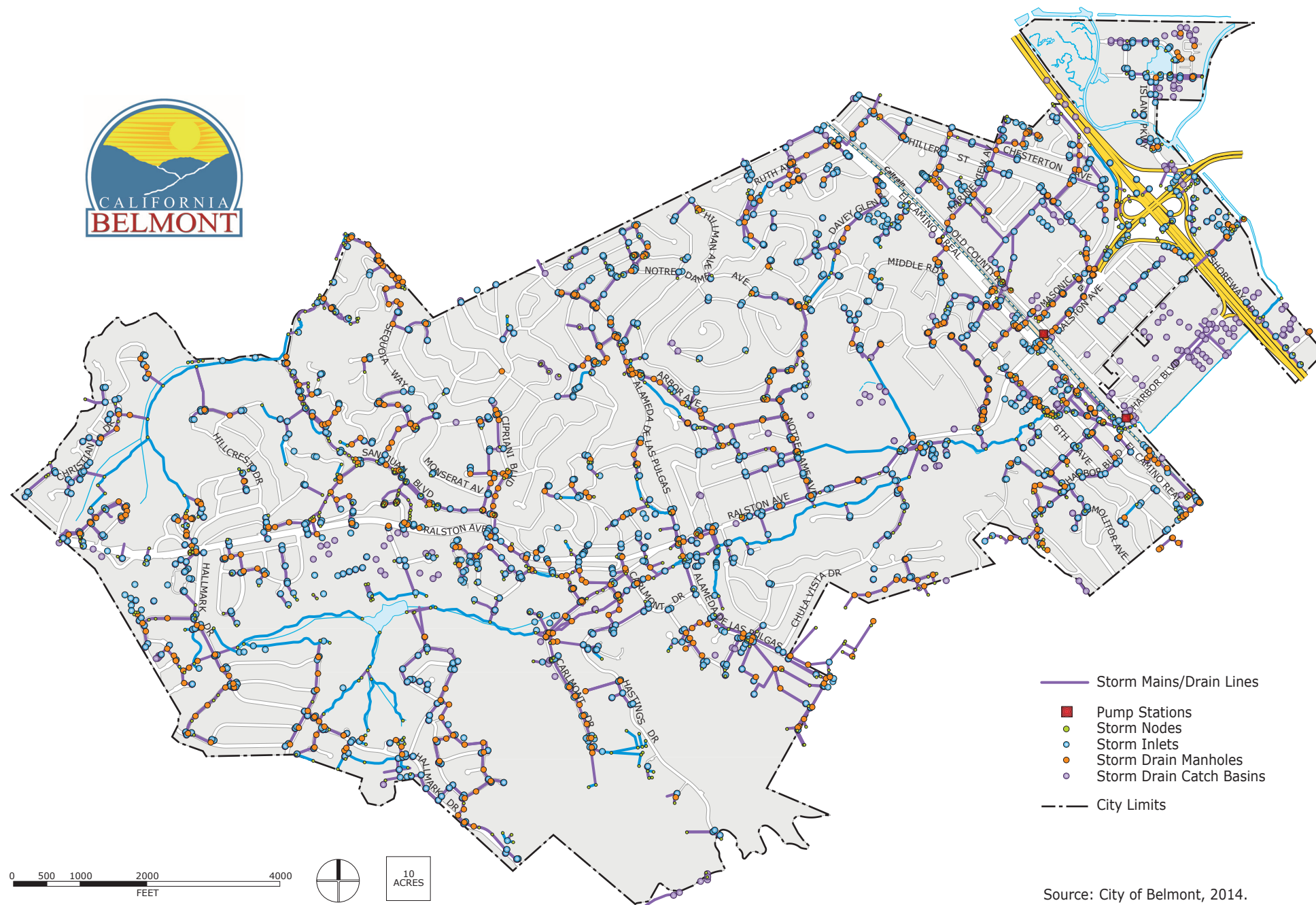
*Photo Credit: Flickr, Marc Smith*

5

CONSERVATION



### FIGURE 5-8: EXISTING STORMWATER SYSTEM



Source: City of Belmont, 2014.

light winds. The terrain of the San Francisco Bay Area is complex, consisting of coastal mountain ranges, inland valleys and bays. Because of the blocking and channeling effects of mountains, winds in valleys can be quite different from the regional wind flow over the area.

The peninsula region of the Bay Area extends from the area northwest of San Jose to the Golden Gate. The Santa Cruz Mountains extend up the center of the peninsula. Areas on the west side of the mountains, due to ocean temperatures and northwest winds, experience frequent cool, foggy weather in the summer. On the east side of the mountain range, cities in the southeastern peninsula, such as Belmont, experience warmer temperatures and few foggy days because the coastal air flow is blocked by the ridge to the west. In the Belmont area (as measured in Redwood City), the summer maximum temperatures are typically in the low 80s. Daily maximum temperatures during the winter months are in the high 50s. Average winter minimum temperatures at Redwood City are about 40 degrees, and summer minimum temperatures are 52-54 degrees. Annual average wind speeds range from 5 to 10 miles per hour throughout the peninsula.

The San Francisco Bay Area climate is characterized by moderately wet winters and dry summers. About 90 percent of the

annual total rainfall occurs in the November-April period; between mid-June and mid-September, normal rainfall is typically less than 1/10 inch. Rainfall amounts on the east side of the peninsula are somewhat lower than on the west side with Redwood City reporting an average of 19.5 inches per year.

### **Bay Area Air Quality Management District**

The California Legislature created the Bay Area Air Quality Management District (BAAQMD) in 1955 as the first regional air pollution control agency in the country. The BAAQMD regulates stationary sources of air pollution in the nine counties that surround San Francisco Bay: Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, southwestern Solano, and southern Sonoma counties. The BAAQMD is responsible for assuring that air quality in the district meets national and California ambient air quality standards (AAQS).

### **Air Quality Measurements**

The Bay Area meets the national and California AAQS for carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide, but has not met the national and California AAQS for ozone, the national AAQS for fine (PM<sub>2.5</sub>) particulate matter, and the California AAQS for coarse (PM<sub>10</sub>) and fine (PM<sub>2.5</sub>) particulate matter. The BAAQMD operates a regional network of air quality monitoring stations that measure ambient air pollutant



*Located on the eastern side of the San Francisco Peninsula, Belmont has a mild climate, with maximum summer temperatures typically in the low 80s and maximum winter temperatures in the high 50s.*





*Motor vehicles are primary contributors to ozone and carbon monoxide in the atmosphere.*

concentrations. The nearest monitoring station to Belmont is in Redwood City. Table 5-7 presents measurement data from the Redwood City monitor for carbon monoxide, nitrogen dioxide, ozone, and PM<sub>2.5</sub>, for the most recent three full years of data available (2012-2014). Table 5-7 shows that ambient concentrations of these pollutants did not exceed the AAQS at the Redwood City monitoring station in 2012-2014.

### SENSITIVE RECEPTORS

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. People most likely to be affected by air pollution, as identified by the California Air Resources Board, include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, daycare centers, playgrounds, parks and other recreational facilities, athletic facilities, hospitals and other medical care facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

### CLIMATE CHANGE AND GREENHOUSE GASES

#### *Global Climate Change*

Earth absorbs heat energy from the sun and returns most of this heat to space as terrestrial infrared radiation. Greenhouse gases (GHGs) trap heat in the lower atmosphere (the

atmosphere extending from Earth's surface to approximately 4 to 12 miles above the surface) by absorbing heat energy emitted by Earth's surface and lower atmosphere, and reradiating much of it back to Earth's surface, thereby causing warming. This process, known as the greenhouse effect, is responsible for maintaining surface temperatures that are warm enough to sustain life. Most GHGs occur naturally. Human activities, particularly fossil-fuel combustion, as well as the use of several industrial gases that are GHGs, lead to increased concentrations of GHGs in the atmosphere, thereby intensifying the warming associated with the Earth's greenhouse effect.

Since the industrial revolution, when fossil fuels began to be burned in increasing quantities, concentrations of GHGs in the atmosphere have increased. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and the burning of fossil carbon fuel sources have caused carbon dioxide (CO<sub>2</sub>) concentrations to increase. This buildup of GHGs in the atmosphere is changing the Earth's energy balance and causing the planet to warm, which in turn affects sea levels, precipitation patterns, cloud cover, ocean temperatures and currents, ocean acidification, polar snow and ice accumulation, and other climatic conditions. Scientists refer to this phenomenon as "global climate change."

### Potential Effects of Climate Change in the Belmont Area

Even with the efforts of the municipalities throughout the greater San Francisco Bay Area and California, a certain amount of climate change is unavoidable due to existing and future predicted GHG emissions. The San Francisco Bay Area, including San Mateo County and the Belmont area, may be subject to the following climatic changes: hotter and drier climate; decreases in chaparral/coast scrub and blue oak woodland/foothill pine; increases in grassland; increased salinity in the San Francisco Bay; increased estuarine flows into the San Francisco Bay estuary; increased potential for extreme heat events and decreased air quality, changes in annual precipitation; increased public and private water demand; and rising sea level of up to 24 inches by 2050 and 66 inches by 2100 (compared to 2000 conditions).

### Greenhouse Gases

Greenhouse gases play a critical role in determining the Earth's surface temperature. Some GHGs, including carbon dioxide, methane, nitrous oxide, water vapor, and ozone, occur naturally and are emitted to the atmosphere through natural processes and human activities, while others are created and emitted solely through human activities. The six primary GHGs associated with human activities are:

**TABLE 5-7: Measured Air Pollutant Concentrations At Redwood City**

Pollutant <sup>1</sup>	California Standard	Federal Standard	Measured Concentrations by Year		
			2012	2013	2014
Carbon Monoxide (ppm <sup>2</sup> )					
Maximum 1-hour average	20	35	4.0	3.6	3.2
Maximum 8-hour average	9.0	9.0	1.8	1.6	1.6
Nitrogen Dioxide (ppb)					
Maximum 1-hour average	180	100	55.2	53.8	60.4
Annual average	30	53	11.4	12.6	10.8
Ozone (ppm)					
Maximum 1-hour average	0.090	–	0.063	0.083	0.086
4th maximum 8-hour average	0.070	0.0753	0.050	0.056	0.064
Particulate Matter (PM2.5) (µg/m3)					
98th percentile 24-hour average	–	35	22.4	28.5	22.4
Annual average	12	12	8.5	10.7	7.1

**Notes:**

1. Lead, coarse particulate matter (PM<sub>10</sub>) and sulfur dioxide are not measured at the Redwood City monitor.
2. ppm = parts per million, ppb = parts per billion, µg/m<sup>3</sup> = micrograms per cubic meter
3. On October 1, 2015, USEPA issued a proposed rule to reduce the federal 8-hour ozone standard to 0.070 ppm. Until this rule is finalized the current standard of 0.075 ppm remains in effect.

Source: BAAQMD, Annual Bay Area Air Quality Summaries, 2015; US Environmental Protection Agency, AirData, 2015

- Carbon dioxide (CO<sub>2</sub>), emitted as a result of fossil fuel combustion, with contributions from cement manufacture;
- Methane (CH<sub>4</sub>), produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion;



- Nitrous oxide (N<sub>2</sub>O), typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning;
- Hydrofluorocarbons (HFCs), primarily used as refrigerants;
- Perfluorocarbons (PFCs), originally introduced as alternatives to ozone-depleting substances and typically emitted as by-products of industrial and manufacturing processes; and,
- Sulfur hexafluoride (SF<sub>6</sub>), primarily used in electrical transmission and distribution systems.

Greenhouse gas emissions contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, transportation, utilities, residential, and agricultural sectors. According to the California Air Quality Board, the sectors with the greatest contributions in California include fossil fuel consumption from transportation (38 percent), industry (23 percent), and electricity production (20 percent), followed by agriculture and forestry (8 percent), residential (7 percent), and commercial (less than 5 percent).

### **Energy Resources**

Our modern economy depends on access to energy resources. Because a large proportion of our energy use is based on fossil fuels that contribute to GHG emissions, it is important to reduce fossil fuel usage where possible.

### **Energy Efficiency and Sustainability**

Improving energy efficiency – reducing the amount of energy consumed for a given amount of work or economic output – is key to managing GHG emissions. Replacing fossil fuels with renewable sources of energy also reduces GHG emissions. Communities can encourage energy efficiency and use of renewable energy in a number of ways. Building design standards that specify improved materials and insulation, plus solar-oriented site design, reduce demand for natural gas and electricity for heating and air conditioning. Transportation and land use measures that support transit and facilitate walking and bicycling reduce dependence on fossil fuels. Developed areas often have warmer temperatures than undeveloped areas, a phenomenon known as the urban heat island effect, which contributes to increased energy consumption in urban areas; however, low impact development and landscaping can reduce the urban heat island effect.

### **Counteracting Climate Change: The City's Role**

The greatest ability to reduce GHG emissions from energy use lies with the federal

government and the states. Nevertheless, the City of Belmont can contribute by improving energy efficiency in municipal operations and by shifting to renewable energy use where possible. The City can also promote energy choices that increase efficiency and use of renewables for residents and businesses, and encourage land use planning that allows for residents to meet more of their daily needs (commute trips, shopping, etc.) without requiring long automobile trips. The City can also educate residents and businesses about the economic benefits, as well as the environmental benefits, of making these changes.

#### **Belmont's Climate Action Plan**

Concurrent with this General Plan, the City has prepared a Climate Action Plan (CAP) to achieve compliance with State mandates and focus on feasible actions the City can take to minimize the adverse impacts of growth and development on global climate change. While the General Plan sets the GHG emissions reduction targets and provides general policy support for efforts to reduce emissions, the Climate Action Plan serves as a blueprint for the City's climate change strategy; it contains the detailed strategies and measures that will be implemented in Belmont to reduce GHG emissions.

#### *Planning for Management of Greenhouse Gases*

##### **GHG Emissions Inventories**

The first step in managing GHG emissions is to understand the sources and amounts of those emissions. This is achieved by establishing an inventory of GHG emissions in Belmont. Table 5-8 shows global GHG emissions in metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e) generated worldwide, within the United States, within California, and within Belmont, with Belmont data coming from the City's CAP.

The CAP includes an inventory of community (i.e. citywide, from all uses and sectors; versus municipal, which is attributable only to municipal operations) GHG emissions in 2013. The inventory reports that emissions are distributed by sector as shown in Table 5-9.

In 2005, of the 38 percent of Belmont's GHGs generated by buildings in the commercial, industrial, and residential sectors combined, 40 percent (27,102 MTCO<sub>2</sub>e) was the result of electricity consumption, and 60 percent (40,236 MTCO<sub>2</sub>e) was the result of natural gas consumption.

The City's CAP shows a "business-as-usual" (BAU) forecast of community emissions based on the annual average population growth rate from 2013 to 2035. The BAU forecast shows 196,422 MTCO<sub>2</sub>e in 2035, a 23.5 percent increase from 2013 levels. The City's





*Transportation accounts for 60 percent of the greenhouse gas emissions in Belmont.*

CAP sets a 2035 emissions reduction target equivalent to 50 percent below 2005 levels (or a reduction of 112,598 MTCO<sub>2</sub>e from the 2035 BAU forecast).

The California AB 32 Scoping Plan seeks to bring California to a low carbon future, reaching 1990 emissions levels by 2020. As part of that reduction, the plan asks municipal governments to reduce their emissions by at least 15 percent by 2020 compared with current levels (current levels are defined as 2008 levels or earlier). The AB 32 Scoping Plan also directs local governments to assist the state in meeting California's emissions goals. Many cities consequently have adopted community-wide emissions reduction targets at least 15 percent below 2005 levels by 2020. The City's CAP currently proposes a 2020 emissions reduction target equivalent to 15 percent below 2005 levels (or a reduction

of 22,512 MTCO<sub>2</sub>e from the 2020 BAU forecast).

Regulations aimed at reducing GHG emissions at the state and regional levels will also contribute to emissions reductions in Belmont. For example, the California Renewable Portfolio Standard (RPS) mandates that 33 percent of electricity sold by the State's investor-owned utilities must be generated from renewable resources by 2020. The Draft CAP accounts for emissions reductions that can be expected from existing statewide initiatives, such as the RPS, vehicle fuel efficiency requirements, low carbon fuel standard, and other new legislation. As shown in Table 5-10, after accounting for these initiatives, no additional emission reductions would be required to meet the City's reduction target.

**TABLE 5-8: Comparison of GHG Emissions Inventories**

Location	Emissions (MTCO <sub>2</sub> e/year) <sup>1</sup>	Population (millions)	Average per capita Emissions (MTCO <sub>2</sub> e/year)
World (2012)	46,049,400,000	7,098	6.5
United States (2013)	6,673,000,000	309	21.6
California (2013)	459,270,000	37.3	12.3
Belmont <sup>2</sup> (2013)	159,051	0.0264	6.0

Notes:

1. MTCO<sub>2</sub>e = Metric tons of carbon dioxide equivalent.

2. Entire community; includes municipal (city government) emissions.

Source: World Resources Institute, *Climate Analysis Indicators Tool*, 2015; US Environmental Protection Agency, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013, 2015*; California Air Resources Board, *California Greenhouse Gas Emission Inventory, 2015*; City of Belmont Draft Climate Action Plan, 2017; United Nations, Department of Economic and Social Affairs, Population Division, 2015; and US Census, 2010.

**TABLE 5-9: City of Belmont GHG Emissions Inventory**

<b>Sector<sup>1</sup></b>	<b>2005 GHG Emissions (MTCO<sub>2</sub>e/year)<sup>2</sup></b>	<b>2013 GHG Emissions (MTCO<sub>2</sub>e/year)<sup>2</sup></b>	<b>2013 Percentage of GHG Emissions</b>
Transportation	100,554	97,490	60%
Commercial and industrial uses	21,052	19,730	13%
Residential uses	42,134	38,778	25%
Generated waste and wastewater	3,908	2,742	2%
Water	0	311	0.2%
<b>Total</b>	<b>167,648</b>	<b>159,051</b>	<b>100%</b>

Notes:

1. Entire community; includes municipal (city government) emissions.

2. MTCO<sub>2</sub>e = Metric tons of carbon dioxide equivalent

Source: City of Belmont Draft Climate Action Plan, 2017.

### Belmont's Climate Change Initiatives

To date, the City of Belmont has undertaken the following sustainability efforts (as reported in the CAP):

- The City adopted the 2013 CALGreen Building Code with no local amendments. This code is more restrictive than the Green Building Ordinance the City had in place. This ordinance expired on January 1, 2014 when the new codes went into place.
- Implemented a program to reduce solar project permit fees if the contractor follows a set application checklist.
- Adopted procedures in accordance with Assembly Bill AB 2188, which streamlines permits for solar residential projects.
- Adopted a Housing Element consistent with the Association of Bay Area Governments' Regional Housing Need Allocation for the 2015-2023 planning timeframe.
- Implemented a City shuttle program, which includes a senior shuttle service. The Twin Pines Senior and Community Center offers a van shuttle service for seniors wishing to visit the Center.
- Implemented and continues to install and support bike lanes and bicycling infrastructure.
- Acquired significant open space areas through a policy initiative aimed at reducing development. (One-third of the City is currently open space.)



- Passed Measure F to reduce density and increase minimum lot size in the hillside areas of Belmont. (Measure F requires voter approval of any future amendments to the zoning ordinances governing the Hillside Residential districts.)
- Contracted with Recology of San Mateo County to provide composting services for organics along with solid waste services.
- Completed three rounds of audits and upgrades to City facilities through the San Mateo Energy Watch Program. In 2009, City Hall, Barrett Community Center, Corporation Yard and Conference Center received lighting retrofits.
- Completed a municipal facilities lighting and energy efficiency retrofit. The Library was completed in June 2015 with the LED lighting and a recommissioned heating and cooling system. City Hall work was completed in 2016 and also includes new controllers for the heating and cooling system and LED lighting. Both of these projects are part of the Pacific Gas and Electric Company rebate program and are resulting in significant energy savings.
- Adopted a single-use bag ordinance.
- Currently including LED street lights in City Complete Streets implementation.

**TABLE 5-10: Belmont GHG Emissions – 2005 Baseline; 2020 and 2035 Forecasts and Recommended Reduction Targets**

Description	GHG Emissions (MTCO <sub>2</sub> e/year) <sup>1</sup>
2005 Baseline Inventory	167,648
2020 Target Emissions at 15% below 2005 <sup>2</sup>	142,501
2020 Year Emissions under Business-As-Usual	165,013
2020 Emissions Reduction Requirement <sup>2,3</sup>	22,512
2035 Target Emissions at 50% below 2005 <sup>2</sup>	83,824
2035 Year Emissions under Business-As-Usual	196,422
2035 Emissions Reduction Requirement <sup>2,3</sup>	112,598
Reduction Attributable to State and San Mateo County Measures	95,351
Reduction Attributable to Draft CAP Measures	19,290
<b>Total Reduction Attributable to State, County, and Draft CAP Measures</b>	<b>114,641</b>
Remaining Reduction Needed	None

Notes:

1. MTCO<sub>2</sub>e = Metric tons of carbon dioxide equivalent.

2. This suggested reduction target has not yet been approved or adopted by the City.

3. Business-As-Usual minus recommended target.

Source: City of Belmont Draft Climate Action Plan, 2017.

- Completed 2013 Municipal and Communitywide GHG Emissions Inventories.

The CAP sets the three goals below that seek to reduce GHG emissions from Belmont. Each goal includes a number of specific measures that are described in the CAP. Some measures aim to reduce emissions from the community at large, while other measures may specifically focus on the operations of the City of Belmont.

- **Energy:** Increase municipal, residential, and commercial energy efficiency; renewable energy; efficient water use; and green building practices (CAP contains 14 specific measures to address this goal).
- **Transportation and Land Use:** Reduce emissions from transportation through efficient land use, alternate modes of transportation, and operational innovations (CAP contains 6 specific measures to address this goal).
- **Waste Generation:** Reduce solid waste generated and sent to landfills (CAP contains 3 specific measures to address this goal).

### Adaptation and Resiliency to Climate Change

Although reducing GHGs to mitigate the effects of climate change is necessary to avoid the most catastrophic consequences of climate

change, a certain amount of climate change is unavoidable. Therefore, effort must be made to adapt to the effects of climate change and build resiliency to its effects. Public health and safety, as well as infrastructure and property, are at risk, and well-informed planning can help reduce the threat. As explained above, some of the impacts on Belmont include sea level rise, increased wildfire risk, and increased potential for extreme heat events.

San Mateo County's Local Hazard Mitigation Plan (LHMP) evaluates the impacts of climate change on the natural hazards facing the County. For example, flooding will be impacted by climate change due to sea level rise and increased intensity of storms. In terms of sea level rise, there is evidence that the global sea level is rising at an increased rate and will continue to over the next century. According to a joint effort of the San Francisco Bay Conservation and Development Commission (BCDC) and National Oceanic and Atmospheric Administration (NOAA) Office of Coastal Management, sea level rise in the Bay Area is expected to increase by approximately 16 inches by 2050 and 55 inches by 2100 over 2000 levels. The LHMP shows the potential impacts from a 72-inch increase in sea level, in which both important public infrastructure such as US 101 and a significant amount of private property, including the homes of approximately 1,900 residents of Belmont, would be inundated.



*Increasing use of alternative modes of transportation, such as public transit and bicycling, is an important component to reducing greenhouse gas emissions in Belmont.*



The City of Belmont's Annex to the County's LHMP includes actions to reduce the risks of natural hazards that are exacerbated by climate change. These include developing an inventory of vulnerable populations within Belmont and providing incentives for eligible entities, including homeowners, to adapt to risks through structural and nonstructural retrofitting. The City is committed to continuing to adapt to and build resiliency to the effects of climate change.

## 5.7 ARCHAEOLOGICAL & PALEONTOLOGICAL RESOURCES

In addition to a desire by the local community to protect historic and prehistoric resources, State laws, most notably CEQA, protect archaeological and other cultural resources. Cultural resources are defined as buildings, sites, structures, or objects that may have historical, architectural, archaeological, paleontological, cultural, or scientific importance. Information on Belmont's cultural resources was obtained through a comprehensive record search by the Northwest Information Center of the California Historic Resources Information System, which is one of ten information centers affiliated with the California State Office of Historic Preservation.

At this time, many of Belmont's resources that were revealed in the records search are historic resources, which are discussed in detail in the Historic Preservation section of the Land Use Element. Two additional resources were identified as prehistoric archaeological sites, but the Information Center does not provide their specific locations in order to protect sites from looting. One multicomponent resource was identified that contains a prehistoric habitation site and the historic Ross House, at the Davey Glen Site. Potential unrecorded archaeological sites may exist in Belmont, particularly along Belmont and Laurel creeks, near wetlands areas, and in the foothill to valley ecotones (ecological transition areas). Any resources discovered must be evaluated, following CEQA requirements. There are no archaeological sites currently listed on the National Register of Historic Places in Belmont.

By adopting the CAP, the City commits to take action to reduce GHG emissions. The CAP provides a prioritized list of actions, each of which would be further developed, studied, and vetted independently before being implemented. The CAP states that its programs and policies would give Belmont a viable path towards reducing emissions that, combined with emissions reductions resulting from State and regional policies, would meet the emissions reduction goals established in AB 32.

## GOALS, POLICIES, AND ACTIONS

### GOAL 5.1 Protect and maintain open space for the preservation of natural resources.

**Policy 5.1-1** Ensure that any improvements recommended for open space areas are appropriate for the type of open space and the use proposed.

**Policy 5.1-2** In portions of Belmont that include significant open space resources, use area plans to address the balance and interface between natural and developed areas.

**Action 5.1-2a:** Update the San Juan Hills and Western Hills area plans to accurately represent current conditions and protect open spaces for natural resource conservation, recreation, and for public health and safety. Remove references to action items that are complete; update vacant parcel surveys; update policies to reflect areas in permanent open space, areas designated for development, and land use policies; update geotechnical issues, topographic constraints, and safety issues; update habitat preservation; and reflect current law.

**Action 5.1-2b:** Promote site design techniques such as cluster-type housing to preserve sensitive environmental resources.

**Policy 5.1-3** Reduce risk of wildland fire, ecological succession, and pathogen threats (such as Sudden Oak Death) through active maintenance of public spaces and education and enforcement of development standards on private property.

**Action 5.1-3a:** Develop consistent design standards for the interface between open space and the adjoining neighborhoods, and neighborhoods and the Urban/Wildland Interface Zone. Identify standards for the margin of space needed to allow wildlife, recreation, and aesthetic values to flourish while also reducing the threats of fire and invasive plants.

**Action 5.1-3b:** Establish standards for development projects, where appropriate and warranted, to incorporate natural features (such as hedgerows and wooded strips) to serve as buffers for adjacent natural areas with high ecological value. Include standards for fencing, brush clearing for fire prevention, and trails.

**Action 5.1-3c:** Establish clear boundaries between public open space and private property through the use of boundary markers or other appropriate methods.

#### **Policy 5.1-4**

Ensure that future acquisitions of open space land are compatible with the City's open space strategy and long-term interests. *See also Policy 4.5-1.*

**Action 5.1-4a:** Develop and adopt criteria and standards for the acquisition of open space by the City of Belmont. Criteria to determine the value of future open space acquisitions for the City could include connections to existing open space, natural resource values, or recreational opportunities. Various acquisition methods should also be considered, including donation and conservation easements. Care should be taken to weigh the positive effects of acquisition with the potential cost and liability of land management.

### GOAL 5.2 Protect and preserve open space for public health, safety and recreation in areas that require special management for regulation.

**Policy 5.2-1** Encourage the retention of areas that are hazardous to public safety and welfare as undeveloped open space, including steep hillsides unsuitable for development as identified in area plans and other detailed geotechnical studies; hydrological areas of concern; areas of geological instability; and appropriate setback areas on either side of known active fault traces. *See also discussion and policies in the Safety Element.*

**Policy 5.2-2** Involve the public in stewardship of Belmont's open space resources.

**Action 5.2-2a:** Develop an active public engagement program for education and involvement in Belmont's open space. Encour-



age volunteers to maintain the trails, replant damaged areas, and remove invasive species.

**Action 5.2-2b:** Develop interpretive programs to enhance the community's understanding and engagement in the open space areas.

### **GOAL 5.3 Protect and restore biological and ecological resources in Belmont, including sensitive wildlife species and their habitats.**

**Policy 5.3-1** Support the protection, preservation, restoration, and enhancement of habitats of State or federally listed rare, threatened, endangered and/or other sensitive and special status species, and favor enhancement of contiguous areas over small, segmented remainder parcels.

**Policy 5.3-2** Continue to maintain, protect, restore, and enhance Belmont's ecologically important areas and seek to reduce impacts on them, including the creek corridors, the open space, and the wetlands around O'Neill Slough.

**Policy 5.3-3** To the greatest extent feasible, ensure that development does not disturb sensitive habitat and special status species by requiring appropriate and feasible mitigation measures.

**Action 5.3-3a:** Establish guidelines for habitat conservation and mitigation programs

when sensitive habitat or special status species would be disturbed by development. These could include, but are not limited to:

- Protocols for the evaluation of a site's environmental setting and proposed design and operating parameters of proposed mitigation measures.
- Methodology for the analysis of land to be acquired or set aside for mitigation activities.
- Parameters for specification of the types and sources of plant material used for any revegetation, irrigation requirements, and post-planting maintenance and other operational measures to ensure successful mitigation by the project proponent.
- Monitoring at an appropriate frequency by qualified personnel and reporting of data collected to permitting agencies, if necessary.

**Action 5.3-3b:** If Endangered or Threatened Species are discovered prior to or during construction of a development project, require project proponents to consult a qualified biologist for recommended proper action, and incorporate appropriate mitigation measures.

**Policy 5.3-4** Maintain functional wildlife corridors and habitat linkage in order to contribute to regional biodiversity and the viability of rare, unique or sensitive biological resources throughout the city and region.

**Policy 5.3-5** In design and construction, require use of best practices that preserve natural resources, such as soil, trees, native plants, and permeable surfaces.

**Policy 5.3-6** Avoid light pollution and unnecessary glare by requiring development projects to use design features and shielding methods that cast outdoor light downward and minimize glare and to install the minimum amount of outdoor lighting necessary for safety and security.

**Action 5.3-6a:** Update the *Zoning Ordinance* to include outdoor lighting standards consistent with best practices for safety and lighting to reduce high intensity outdoor lighting and glare.

**Policy 5.3-7** Encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation, and ensure the maximum number and variety of well-adapted plants are maintained.

**Policy 5.3-8** Use native or drought-resistant vegetation in landscaping on City-owned property, and encourage private property owners to use native or drought-resistant vegetation in landscaping on private property.

**Policy 5.3-9** Promote the healthy growth of trees and control the removal of trees within the city.

**Action 5.3-9a:** Maintain and enforce the City's Tree Ordinance to provide adequate and reasonable tree protection and removal standards and best management practices.

**Policy 5.3-10** Allow neighborhood community gardens as a permitted use in all residential zoning districts.

**Action 5.3-10a:** Update the Zoning Ordinance to include neighborhood community gardens as a permitted use in all residential zoning districts.

**GOAL 5.4 Preserve and restore Belmont's waterways and adjacent corridors as valuable community resources that serve as plant and wildlife habitats, groundwater recharge facilities, flood control and irrigation components, and connections between open space areas.**

**Policy 5.4-1** Restore Belmont Creek to enhance ecological functions, biological resources, hydrology function, and flood control.

**Action 5.4-1a:** Continue to work in collaboration with the Department of Fish and Wildlife, US Army Corp of Engineers, the San Francisco Bay Regional Water Quality Control Board, the cities of San Carlos and Redwood City, San Mateo County, Caltrans, and other entities as needed, to identify and

implement a long-term approach to address ongoing maintenance and creek improvements.

**Action 5.4-1b:** Consider implementing potential improvements to Belmont Creek as is feasible and appropriate, including but not limited to projects such as enlarging the bypass culvert on Harbor Boulevard; restoring the floodplain at Twin Pines Park without reducing existing park uses; constructing an off-line basin; building flood walls through lower Belmont Creek; daylighting sections of the eastern portion of the creek; improving the operations and design of Water Dog Lake; or installing tide gates at Marine Parkway.

**Policy 5.4-2** Preserve, where possible, natural watercourses or provide naturalized drainage channels within the city. Where necessary and feasible, implement restoration and rehabilitation measures.

**Policy 5.4-3** Protect, restore, and enhance a continuous corridor of native riparian vegetation and wildlife habitat along Belmont's waterways, water bodies, and wetlands.

**Policy 5.4-4** Preserve and enhance the natural riparian environment along waterway corridors, including Belmont Creek, by minimizing environmental and visual impacts. *See also Policy 4.5-2 in the Parks, Recreation, and Open Space Element.*

**Action 5.4-4a:** Establish design and development standards for new development near waterway corridors to preserve and enhance the natural riparian environment along these corridors and ensure that building and vehicle service areas, loading docks, trash enclosures, and storage areas are set back from waterways and/or screened from view from the Belmont Creek corridor to minimize environmental and visual impacts.

**GOAL 5.5 Preserve water quality by promoting the protection of Belmont's creeks and other natural water bodies from pollution.**

**Policy 5.5-1** Continue to participate in the San Mateo Countywide Water Pollution Prevention Program.

**Policy 5.5-2** Encourage residents and businesses to use best management practices (BMPs) to reduce water pollutant loads that result from daily activities, such as using landscaping chemicals and fertilizers and repairing and washing cars outdoors.

**Policy 5.5-3** Require development projects to incorporate structural and non-structural best management practices (BMPs) to mitigate or reduce the projected increases in pollutant loads, in accordance with the NPDES permit guidelines.

**Policy 5.5-4** Ensure that the design and construction of new infrastructure elements does not contribute to stream bank or hill-side erosion or creek or wetland siltation, and incorporates site design and source control BMPs, construction phase BMPs, and treatment control BMPs to minimize impacts to water quality.

**Policy 5.5-5** Implement water pollution prevention methods to the maximum extent practicable, supplemented by pollutant source controls and treatment.

**GOAL 5.6** Preserve water resources and provide for long-range community water needs by adopting best management practices for water use and conservation.

**Policy 5.6-1** Work with the Mid-Peninsula Water District to meet State targets for reducing per capita urban water use.

**Policy 5.6-2** Support the Mid-Peninsula Water District in advocating for reliable and fairly priced water from the San Francisco regional water system.

**Policy 5.6-3** Encourage the Mid-Peninsula Water District to continue and expand its water conservation programs.

**Policy 5.6-4** Set appropriate conditions of approval for each new development proposal to ensure that the necessary water supply

facilities and water resources are in place prior to occupancy.

**Policy 5.6-5** Continue the City's Water Conservation Strategy to reduce water use, control water cost, and promote environmental sustainability in municipal buildings, parks, landscaped areas, and athletic fields, as feasible and appropriate.

**GOAL 5.7** Provide adequate wastewater collection, treatment, recycling and disposal facilities in a timely fashion to serve existing and future needs.

**Policy 5.7-1** Continue to make improvements and upgrades to the wastewater system, consistent with the City's Sanitary Sewer System Capacity Analysis and the Silicon Valley Clean Water Conveyance System Master Plan.

**Action 5.7-1a:** Identify the improvements and upgrades that are necessary to improve and maintain the sewer infrastructure to serve the City's long-term needs and prioritize funding to complete the improvement projects.

**Policy 5.7-2** Periodically review and update development impact fees, wastewater connection charges, and monthly service charges to ensure that adequate funds are collected to operate and maintain existing facilities and to construct new facilities.

**Policy 5.7-3** Partner with Silicon Valley Clean Water to develop and implement a local purified/recycled water (treated wastewater) program for Belmont, as technology and infrastructure allow.

**Action 5.7-3a:** Establish a program to reduce water use in municipal buildings and allow use of recycled water in buildings and irrigation, as feasible and appropriate.

**Action 5.7-3b:** As it becomes available and cost-effective, encourage and consider providing incentives for, as appropriate, potential future customers to retrofit their water systems to utilize recycled water as part of Belmont's treated wastewater program.

**GOAL 5.8** Provide adequate solid waste facilities and services for the collection, transfer, recycling, and disposal of refuse.

**Policy 5.8-1** Promote solid waste reduction, recycling, and composting to Belmont residents and businesses as an important way to conserve limited natural resources and reduce greenhouse gas emissions.

**Policy 5.8-2** Solicit the use of recycled products in City procurement documents.



**GOAL 5.9 Maintain and improve the reliability of the City’s storm drainage system, and promote best management practices to protect this system from flooding, enhance water quality, and prevent infrastructure deterioration.**

**Policy 5.9-1** Continue to make improvements and upgrades to the drainage system. Priorities should be to provide curbs and gutters to underserved areas (as feasible), improve facilities in areas that are subject to seasonal flooding, increase capacity of the system, and replace damaged lines in the storm drain system.

**Action 5.9-1a:** Identify the improvements and upgrades that are necessary to improve and maintain the storm drainage system to serve the City’s long-term needs and prioritize funding to complete the improvement projects.

**Action 5.9-1b:** Pursue additional funding sources, including a potential impact fee, to complete projects to maintain and improve the reliability of the City’s storm drainage system.

**Action 5.9-1c:** Study and consider adopting a program to mandate that the City annually complete maintenance and improvements on a portion of the storm drainage system, to ensure that the City prioritizes and completes maintenance projects.

### **Policy 5.9-2**

Encourage development projects of all sizes to incorporate site design measures that facilitate groundwater recharge and natural hydrological processes, allowing stormwater to infiltrate the ground on-site and/or be collected for reuse in landscaping and designated to on-site stormwater detention facilities. Such measures may include:

- Canopy trees or shrubs to absorb rainwater;
- Grading that lengthens flow paths over permeable surfaces and increases runoff travel time to reduce the peak hour flow rate;
- Partially removing curbs and gutters from parking areas where appropriate to allow stormwater sheet flow into vegetated areas;
- Installation of green roofs on buildings;
- Use of permeable paving in parking lots and other areas characterized by significant impervious surfaces;
- On-site stormwater detention, use of bioswales and bioretention basins to facilitate infiltration; and
- Integrated or subsurface water retention facilities to capture rainwater for use in landscape irrigation and other non-potable uses.

**GOAL 5.10 Reduce emissions of ozone-producing pollutants and particulate matter to improve regional air quality and protect the health of Belmont and Bay Area residents.**

**Policy 5.10-1** Coordinate air quality planning efforts with other local, regional, and State agencies.

### **Action 5.10-1a:**

Support the Bay Area Air Quality Management District’s efforts to reduce pollution and improve air quality through the Spare the Air program, which includes restrictions on wood smoke pollution and transportation-related air pollution emissions.

**Policy 5.10-2** Require that new development with sensitive uses that is located adjacent to sources of toxic air contaminants (TAC) be designed to minimize any potential health risks.

**Policy 5.10-3** Ensure that construction and grading activities minimize short-term impacts to air quality by employing appropriate mitigation measures and best practices.

### **Action 5.10-3a:** Action 5.10-3.a

Require applicants proposing new development projects within the Planning Area to require their contractors, as a condition of contract, to reduce construction-related GHG emissions by implementing BAAQMD’s

recommended best management practices, including (but not limited to) the following measures (based on BAAQMD's (2011) CEQA Guidelines):

- Use local building materials of at least 10 percent (sourced from within 100 miles of the planning area).
- Recycle and reuse at least 50 percent of construction waste or demolition materials.

**Policy 5.10-4** Support land use, transportation management, infrastructure, and environmental planning programs that reduce vehicle emissions and improve air quality.

**Action 5.10-4a:** Implement the recommendations in the City's transportation studies, such as those in the Ralston Avenue Corridor Study, to ease congestion, improve multi-modal mobility, and reduce traffic-generated exhaust. *See Policy 3.1-3 in the Circulation Element.*

**Action 5.10-4b:** Consistent with the goals and policies in the Land Use Element and development patterns shown on the Land Use Diagram, promote mixed use development in Belmont Village and along the El Camino Real Corridor that is supportive of alternative modes of transportation (public transit, walking, bicycling, etc.) and lessens the need for and length of vehicle trips.

**Policy 5.10-5** Provide information about non-toxic alternatives to construction, inte-

rior and exterior finishes and furnishings, and planting and landscaping maintenance to contractors, business owners and homeowners to enhance indoor and outdoor air quality and reduce exposure to toxins.

**Policy 5.10-6** Ensure compliance with the most current Bay Area Clean Air Plan by implementing the Plan's recommended Transportation Control Measures (TCMs). *See policies under Goal 3.2.*

**Note:** *The 2017 Clean Air Plan identifies numerous TCMs aimed at reducing vehicle trips and vehicle miles traveled; increasing access to and support of alternative modes of transportation; promoting compact, walkable land use patterns; and increasing public education and awareness.*

**GOAL 5.11 Reduce emissions of greenhouse gases to 15 percent below the 2005 baseline levels by 2020 and to 50 percent below the 2005 baseline levels by 2035.**

**Policy 5.11-1** Adopt a Climate Action Plan that incorporates a Greenhouse Gas Emissions Reduction Plan, which quantifies current and anticipated future emissions and focuses on feasible actions the City can take to minimize the adverse impacts of General Plan implementation on climate change and air quality.

**Action 5.11-1a:** Maintain an inventory of greenhouse gas emissions from City operations and track related solid waste, energy, economic, and environmental data. Update the inventory periodically as additional data and methodologies become available.

**Policy 5.11-2** Support the Climate Action Plan's goals and implement the CAP's reduction measures and strategies to reduce greenhouse gas emissions.

**Action 5.11-2a:** Support local actions that will reduce motor vehicle use, support alternative forms of transportation, improve energy efficiency, require energy conservation in new construction, and manage energy in public buildings, in accordance with State law.

**Action 5.11-2b:** Periodically monitor and report the City's progress in reducing greenhouse gas emissions and meeting State targets.

**Policy 5.11-3** Support and implement the Climate Action Plan's adaptation strategies and measures that promote resiliency to climate change impacts, such as sea level rise, extreme heat events, regional drought, and increased flooding.

**Policy 5.11-4** Support and participate in regional efforts to reduce greenhouse gas emissions and implement adaptation strategies.

## GOAL 5.12 Preserve and protect areas and sites of prehistoric, cultural, and archaeological significance.

**Policy 5.12-1** Ensure that development avoids potential impacts to sites suspected of being archeologically, paleontologically, or culturally significant, tribal or otherwise, or of concern by requiring appropriate and feasible mitigation.

**Action 5.12-1a:** Establish guidelines and mitigation programs when sites of archaeological, paleontological, and/or cultural concern, *tribal or otherwise*, would be disturbed by development, including:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and,
- Implementing appropriate measures to avoid the identified impacts, as conditions of project approval.

**Policy 5.12-2** If cultural, archaeological, paleontological, or cultural resources, tribal or otherwise, are discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected until evaluation by a qualified professional is completed.

- A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines.
- Use the State Office of Historic Preservation's recommendations for the preparation of Archaeological Resource Management Reports as guidelines.

**Note:** See the *Historic Preservation section of Land Use Element* for goals, policies, and actions focused specifically on historic districts and landmarks and their preservation.